COSEWIC
Status Appraisal Summary

on the

Island Blue
Plebejus saepiolus insulanus

in Canada

ENDANGERED
2012

COSEWIC
Committee on the Status
of Endangered Wildlife
in Canada

COSEPAC
Comité sur la situation
des espèces en péril
au Canada

COSEWIC status appraisal summaries are working documents used in assigning the status of wildlife species suspected of being at risk in Canada. This document may be cited as follows:

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COSEWIC
Assessment Summary

Assessment Summary – May 2012

Common name
Island Blue

Scientific name
Plebejus saepiolus insulanus

Status
Endangered

Reason for designation
This species has not been documented in the field since 1979. However, search effort is insufficient to conclude that the species is extinct. Any remaining populations in its historical range must occur within a very small distributional range and are likely in decline due to declining habitat quality from invasive plants.

Occurrence
British Columbia

Status history
Designated Endangered in November 2000. Status re-examined and confirmed in May 2012.

COSEWIC
Status Appraisal Summary

Plebejus saepiolus insulanus
Island Blue — Bleu insulaire
Jurisdictions: British Columbia

Current COSEWIC Assessment (May 2012): Endangered

Status category:
☐ XT ☒ E ☐ T ☐ SC

Date of previous assessment: November 2000

Reason for designation at previous assessment (November 2000): An extremely restricted endemic of southern Vancouver Island, this species was last recorded in 1979. There remains a remote possibility that it still exists in unsurveyed habitat.

Criteria applied at previous assessment (November 2000): D1

If earlier version of criteria was applied[1], provide correspondence to current criteria: D1.

Recommendation: Update to the status report NOT required (wildlife species' status category remains unchanged)

Reason:
☐ sufficient information to conclude there has been no change in status category

☒ not enough additional information available to warrant a fully updated status report

Evidence (indicate as applicable):

Wildlife species:
Change in eligibility, taxonomy or designatable units: yes ☐ no ☒

Explanation:

No additional information since previous assessment.

Range:
Change in Extent of Occurrence (EO): yes ☐ no ☒ unk ☐
Change in Area of Occupancy (AO) : yes ☐ no ☒ unk ☐
Change in number of known or inferred current locations: yes ☐ no ☒ unk ☐
Significant new survey information yes ☒ no ☐

[1] An earlier version of the quantitative criteria was used by COSEWIC from October 1999 to May 2001 and is available on the COSEWIC website: http://www.cosewic.gc.ca/eng/sct0/original_criteria_e.cfm

Explanation:

Since the previous assessment, a number of surveys have been done for rare butterflies within the historic range and flight season of the Island Blue (Balke and Miskelly 2007, Fenneman 2007, Guppy 2007, Guppy and Fischer 2001, Miskelly 2003, Page 2007, Page *et al.* 2008). Two surveys have specifically targeted the Island Blue at historic collection sites (Guppy 2003, Miskelly 2007). The number of known populations (zero) remains unchanged. However, several historic collection sites have not been resurveyed and survey effort is therefore insufficient to conclude that the species is extirpated.

Population Information:

Change in number of mature individuals: yes ☐ no ☒ unk ☐
Change in total population trend: yes ☐ no ☒ unk ☐
Change in severity of population fragmentation: yes ☐ no ☒ unk ☐
Change in trend in area and/or quality of habitat: yes ☐ no ☒ unk ☐
Significant new survey information yes ☒ no ☐

Explanation:

The potential habitat of the Island Blue continues to be threatened by residential development and invasive plants (Parks Canada Agency 2008). The quality of potential habitat is inferred to be declining. If any extant populations of Island Blue exist, they are assumed to be in decline. Additional surveys have been completed since previous assessment (see above) without detecting this species. However, survey effort is insufficient to conclude that the species is extirpated.

Note that the most recent records in the original report (several from the 1990s) are typographical errors, and relate to specimens collected in the first third of the 20th century.

Threats:

Change in nature and/or severity of threats: yes ☐ no ☒ unk ☐

Explanation:

Habitat destruction and invasive plants continue to be serious threats (Parks Canada Agency 2008).

Protection:

Change in effective protection: yes ☐ no ☒

Explanation:

There are no known populations. The level of protection cannot be assessed.

Rescue Effect:

Evidence of rescue effect: yes ☐ no ☒

Explanation:

The Island Blue is endemic to Vancouver Island. There are no outside populations that could provide rescue.

Quantitative Analysis:

Change in estimated probability of extirpation: yes ☐ no ☒ unk ☐

Details:

No additional information since previous assessment.

Summary and Additional Considerations:

A Recovery Strategy for the Island Blue has been posted to the Species at Risk Act Public Registry (Parks Canada Agency 2008). The strategy states that recovery is not feasible as long as no populations are known. Recovery objectives are to confirm the presence or absence of the species in Canada and to ensure protection of any populations that are discovered.

Authors of Status Appraisal Summary : Ross A. Layberry and James Miskelly.

Sources of information:

Balke, J. M. E. and J. Miskelly. 2007. Taylor's Checkerspot (*Euphydryas editha taylori*) and rare dragonflies on Denman Island, BC, 2007. Garry Oak Ecosystems Recovery Team. 28 pp.

Fenneman, J. D. 2007. Butterfly inventory of Gulf Islands National Park Reserve. BC Ministry of Environment, Vancouver. 73 pp.

Guppy. C. S. 2003. Island Blue (*Plebejus saepiolus insulanus*) inventory of the mountains of southern Vancouver Island. BC Ministry of Water, Land, and Air Protection, Vancouver. 25 pp.

Guppy, C. S. 2007. Taylor's Checkerspot Butterfly on the Denman Settlement Lands 2007. Report prepared for Parks Canada. 26 pp.

Guppy, C. S. and A. I. Fischer. 2001. Garry oak ecosystems rare/ endangered butterflies inventory – 2001 report. BC Ministry of Water, Land, and Air Protection, Victoria. 30 pp.

Miskelly, J. 2003. Hornby Island: Rare and endangered butterfly inventory 2003. BC Ministry of Water, Land, and Air Protection, Vancouver. 11 pp.

Miskelly, J. 2007. 2007 Surveys for Taylor's Checkerspot (*Euphydryas editha taylori* Edwards 1888) [Lepidoptera: Nymphalidae] and Island Blue (*Plebejus saepiolus insulanus* Blackmore 1919) [Lepidoptera:Lycaenidae] butterflies on Observatory Hill. Natural Resources Canada, Victoria. 17 pp.

Page, N. 2007. Survey of Taylor's Checkerspot and other butterflies on Denman and Hornby Islands (2007). BC Ministry of Environment, Vancouver, and Parks Canada Agency, Victoria. 27 pp.

Page, N., Lilley, P., Miskelly, J. and M. Connolly. 2008. Survey of Taylor's Checkerspot and other butterflies in the Shawnigan Lake area (2008). BC Ministry of Environment, Vancouver. 13 pp.

Parks Canada Agency. 2008. Recovery Strategy for the Island Blue (*Plebejus saepiolus insulanus*) in Canada. *Species at Risk Act* Recovery Strategy Series. Parks Canada Agency, Ottawa. 30 pp.

TECHNICAL SUMMARY

Plebejus saepiolus insulanus
Island Blue Bleu insulaire
Range of occurrence in Canada (province/territory/ocean): British Columbia

Demographic Information

Generation time (usually average age of parents in the population; indicate if another method of estimating generation time indicated in the IUCN guidelines(2008) is being used).	One year
Is there an observed, inferred, or projected continuing decline in number of mature individuals?	Yes, inferred decline based on continued threats to habitat.
Estimated percent of continuing decline in total number of mature individuals within 5 years or 2 generations.	Unknown. If still extant, undoubtedly declining.
Observed, estimated, inferred, or suspected percent reduction or increase in total number of mature individuals over the last 10 years, or 3 generations.	Unknown. If still extant, undoubtedly declining.
Projected or suspected percent reduction or increase in total number of mature individuals over the next 10 years, or 3 generations.	Unknown. If still extant, it will undoubtedly decline.
Observed, estimated, inferred, or suspected percent reduction or increase in total number of mature individuals over any 10 years, or 3 generations period, over a time period including both the past and the future.	Unknown. If still extant, undoubtedly declining.
Are the causes of the decline clearly reversible and understood and ceased?	Somewhat understood, not ceased, unlikely to be reversible
Are there extreme fluctuations in number of mature individuals?	Unknown.

Extent and Occupancy Information

Estimated extent of occurrence	EO unknown, but if the species persists certainly below threshold for endangered.
Index of area of occupancy (IAO) (Always report 2x2 grid value).	IAO unknown, but if the species persists certainly below threshold for endangered.
Is the total population severely fragmented?	No populations known.
Number of locations*	No locations known.
Is there an observed, inferred, or projected continuing decline in extent of occurrence?	EO unknown, but if the species persists probably in decline.
Is there an observed, inferred, or projected continuing decline in index of area of occupancy?	IAO unknown, but if the species persists probably in decline.

* See Definitions and Abbreviations on COSEWIC website and IUCN 2010 for more information on this term.

Is there an observed, inferred, or projected continuing decline in number of populations?	No populations known, but if the species persists probably in decline.
Is there an observed, inferred, or projected continuing decline in number of locations*?	No locations known, but if the species persists probably in decline.
Is there an observed, inferred, or projected continuing decline in area, extent and/or quality of habitat?	Yes, inferred decline in quality based on continued threats to habitat.
Are there extreme fluctuations in number of populations?	No, no populations known.
Are there extreme fluctuations in number of locations*?	No, no locations known.
Are there extreme fluctuations in extent of occurrence?	Not likely
Are there extreme fluctuations in index of area of occupancy?	Not likely

Number of Mature Individuals (in each population)

Population	N Mature Individuals
No populations known.	Unknown
Total	Unknown

Quantitative Analysis

Probability of extinction in the wild is at least [20% within 20 years or 5 generations, or 10% within 100 years].	NA

Threats (actual or imminent, to populations or habitats)

Major threats to habitat are residential development and encroachment by non-native plants.

Rescue Effect (immigration from outside Canada)

Status of outside population(s)? Endemic subspecies; no outside populations.	
Is immigration known or possible?	Not possible.
Would immigrants be adapted to survive in Canada?	NA
Is there sufficient habitat for immigrants in Canada?	NA
Is rescue from outside populations likely?	Not possible.

Current Status

COSEWIC: Designated Endangered in November 2000. Status re-examined and confirmed in May 2012.

* See Definitions and Abbreviations on COSEWIC website and IUCN 2010 for more information on this term.

Status and Reasons for Designation

Status:	**Alpha-numeric Code:**
Endangered	B1ab(iii)+2ab(iii)
Reasons for Designation: This species has not been documented in the field since 1979. However, search effort is insufficient to conclude that the species is extinct. Any remaining populations in its historical range must occur within a very small distributional range and are likely in decline due to declining habitat quality from invasive plants.	

Applicability of Criteria

Criterion A: Not applicable. No information available on numbers of mature individuals.
Criterion B: Meets Endangered B1ab(iii)+2ab(iii). The only possible areas where this species may persist are small (below the thresholds for Endangered for EO and IAO) and are impacted by invasive species.
Criterion C: Not applicable. No information available on number of mature individuals.
Criterion D: Not applicable. No information available on number of mature individuals.
Criterion E: Not applicable. No information available.

COSEWIC HISTORY

The Committee on the Status of Endangered Wildlife in Canada (COSEWIC) was created in 1977 as a result of a recommendation at the Federal-Provincial Wildlife Conference held in 1976. It arose from the need for a single, official, scientifically sound, national listing of wildlife species at risk. In 1978, COSEWIC designated its first species and produced its first list of Canadian species at risk. Species designated at meetings of the full committee are added to the list. On June 5, 2003, the *Species at Risk Act* (SARA) was proclaimed. SARA establishes COSEWIC as an advisory body ensuring that species will continue to be assessed under a rigorous and independent scientific process.

COSEWIC MANDATE

The Committee on the Status of Endangered Wildlife in Canada (COSEWIC) assesses the national status of wild species, subspecies, varieties, or other designatable units that are considered to be at risk in Canada. Designations are made on native species for the following taxonomic groups: mammals, birds, reptiles, amphibians, fishes, arthropods, molluscs, vascular plants, mosses, and lichens.

COSEWIC MEMBERSHIP

COSEWIC comprises members from each provincial and territorial government wildlife agency, four federal entities (Canadian Wildlife Service, Parks Canada Agency, Department of Fisheries and Oceans, and the Federal Biodiversity Information Partnership, chaired by the Canadian Museum of Nature), three non-government science members and the co-chairs of the species specialist subcommittees and the Aboriginal Traditional Knowledge subcommittee. The Committee meets to consider status reports on candidate species.

DEFINITIONS
(2012)

Wildlife Species	A species, subspecies, variety, or geographically or genetically distinct population of animal, plant or other organism, other than a bacterium or virus, that is wild by nature and is either native to Canada or has extended its range into Canada without human intervention and has been present in Canada for at least 50 years.
Extinct (X)	A wildlife species that no longer exists.
Extirpated (XT)	A wildlife species no longer existing in the wild in Canada, but occurring elsewhere.
Endangered (E)	A wildlife species facing imminent extirpation or extinction.
Threatened (T)	A wildlife species likely to become endangered if limiting factors are not reversed.
Special Concern (SC)*	A wildlife species that may become a threatened or an endangered species because of a combination of biological characteristics and identified threats.
Not at Risk (NAR)**	A wildlife species that has been evaluated and found to be not at risk of extinction given the current circumstances.
Data Deficient (DD)***	A category that applies when the available information is insufficient (a) to resolve a species' eligibility for assessment or (b) to permit an assessment of the species' risk of extinction.

* Formerly described as "Vulnerable" from 1990 to 1999, or "Rare" prior to 1990.

** Formerly described as "Not In Any Category", or "No Designation Required."

*** Formerly described as "Indeterminate" from 1994 to 1999 or "ISIBD" (insufficient scientific information on which to base a designation) prior to 1994. Definition of the (DD) category revised in 2006.

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